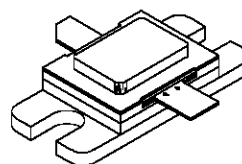


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- DESIGNED FOR HIGH POWER PULSED IFF AND DME APPLICATIONS
- 400 (min.) DME 1025 - 1150 MHz
- 6.5 dB MIN. GAIN
- REFRACTORY GOLD METALLIZATION
- EMITTER BALLASTING AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- 30:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT/OUTPUT MATCHED, COMMON BASE CONFIGURATION



.400 x .500 2LFL (M112)
hermetically sealed

ORDER CODE

SD1541-01

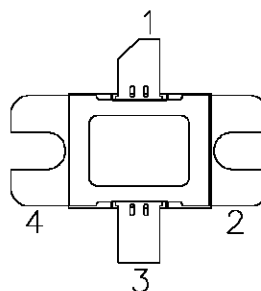
BRANDING

SD1541-1

DESCRIPTION

The SD1541-01 is a hermetically sealed, gold metallized, silicon NPN power transistor. The SD1541-01 is designed for applications requiring high peak power and low duty cycles such as DME. The SD1541-01 is packaged in a hermetic metal/ceramic package with internal input/output matching, resulting in improved broadband performance and a low thermal resistance.

PIN CONNECTION



- | | |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base | 4. Base |

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	65	V
V _{CES}	Collector-Emitter Voltage	65	V
V _{EBO}	Emitter-Base Voltage	3.5	V
I _C	Device Current	22	A
P _{DISS}	Power Dissipation	1458	W
T _J	Junction Temperature	+200	°C
T _{STG}	Storage Temperature	- 65 to +150	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance	0.12	°C/W
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SD1541-01

ELECTRICAL SPECIFICATIONS ($T_{case} = 25^{\circ}C$)

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 25mA$ $I_E = 0mA$	65	—	—	V
BV_{CES}	$I_C = 50mA$ $V_{BE} = 0V$	65	—	—	V
BV_{EBO}	$I_E = 10mA$ $I_C = 0mA$	3.5	—	—	V
I_{CES}	$V_{CE} = 50V$ $I_E = 0mA$	—	—	25	mA
h_{FE}	$V_{CE} = 5V$ $I_C = .25A$	5	—	200	—

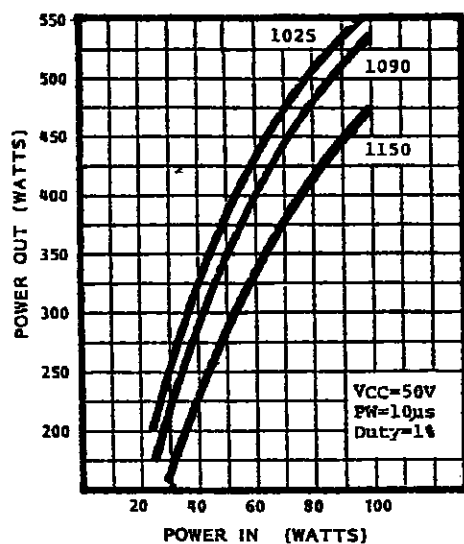
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1025 \text{ — } 1150MHz$ $P_{IN} = 90 \text{ W}$ $V_{CE} = 50 \text{ V}$	400	—	—	W
G_P	$f = 1025 \text{ — } 1150MHz$ $P_{IN} = 90 \text{ W}$ $V_{CE} = 50 \text{ V}$	6.5	—	—	dB

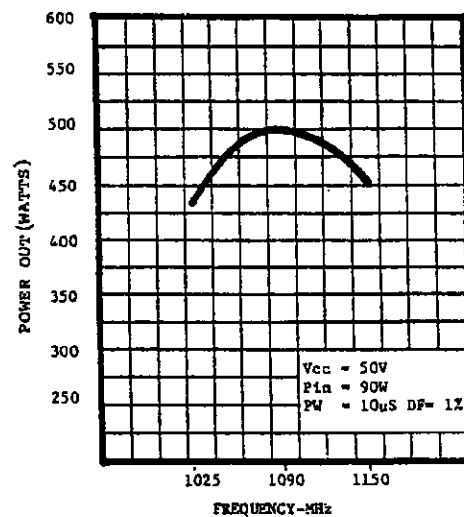
Note: Pulse Width = 10 μ Sec, Duty Cycle = 1%
This device is suitable for use under other pulse width/duty cycle conditions.
Please contact the factory for specific applications assistance.

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT



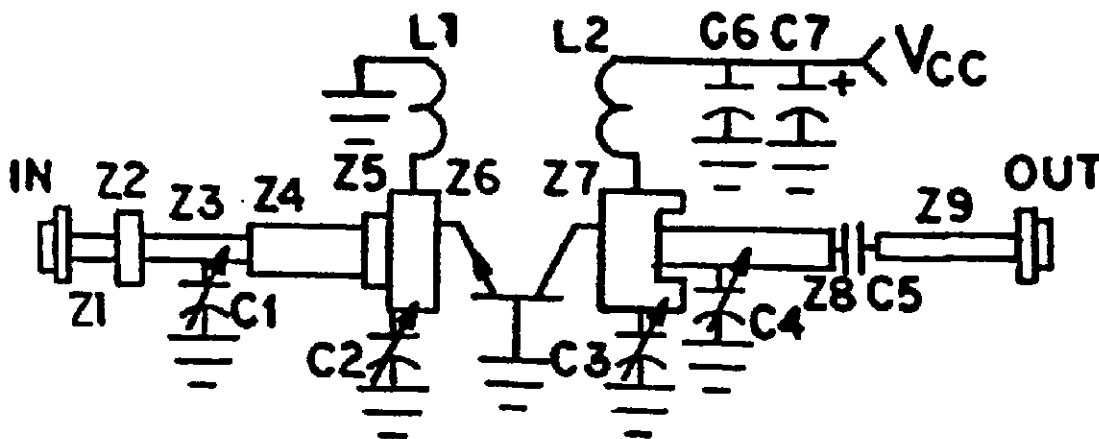
POWER OUTPUT vs FREQUENCY



IMPEDANCE DATA

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
1020 MHz	$2.898 + j 4.1$	$1.382 - j 3.2$
1090 MHz	$2.325 + j 3.4$	$1.338 - j 2.8$
1150 MHz	$1.994 + j 2.8$	$1.269 - j 2.5$

TEST CIRCUIT



All Dimensions in Inches Unless Otherwise specified

C1 : 0.4 - 2.5pF Johanson Gigatrim

C2, C3,

C4 : 0.6 - 4.5pF Johanson Gigatrim

C5 : 82pF Chip Capacitor, .055 Sq.

L1 : Loop, #18 Tinned, .36 Wide x .27 above Circuit

L2 : 4 3/4 Turns, #24 En., C.W., .075 I.D.

Z1 : 50Ω(.02 Wide)

Z2 : .250 x .120

Z3 : 50Ω .020 x .330; C1 tapped .15 from Load

Z4 : .145 x .920

Z5 : .325 x .180

Z6 : .730 x .315

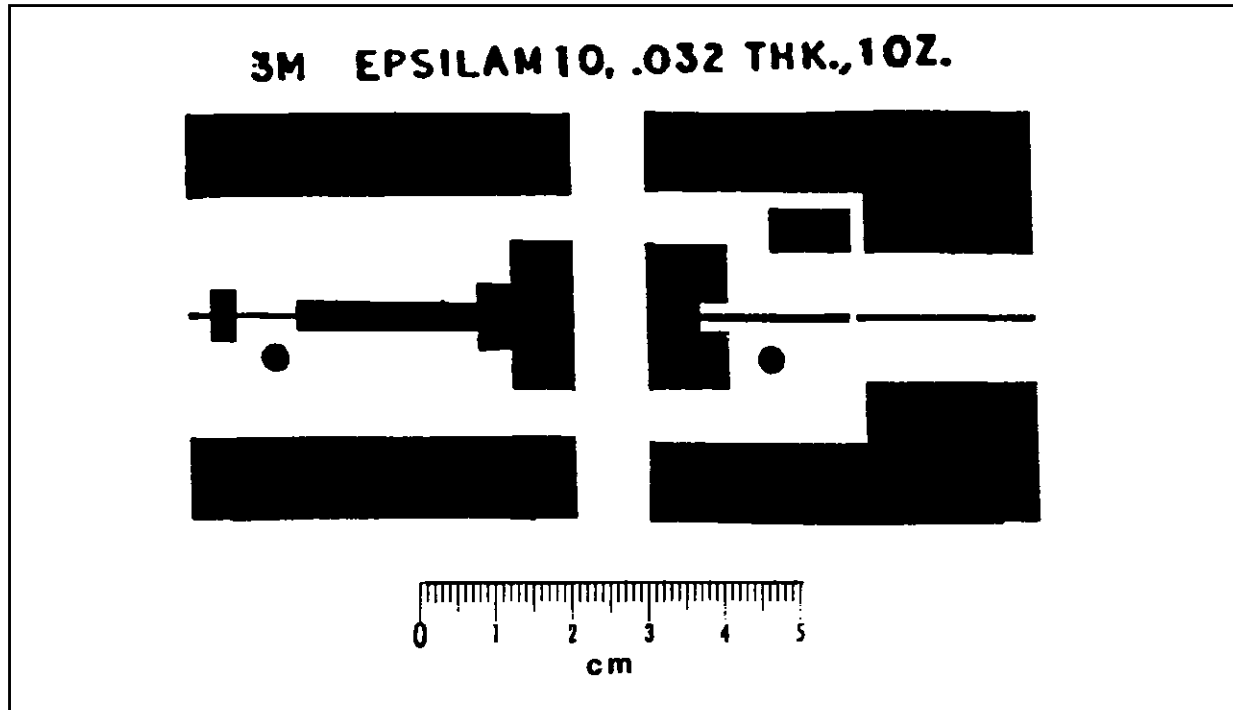
Z7 : .710 x .425 with .140 x .150 cutout

Z8 : .35 x .780; C4 Tapped .36 from Cen

Z9 : 50Ω

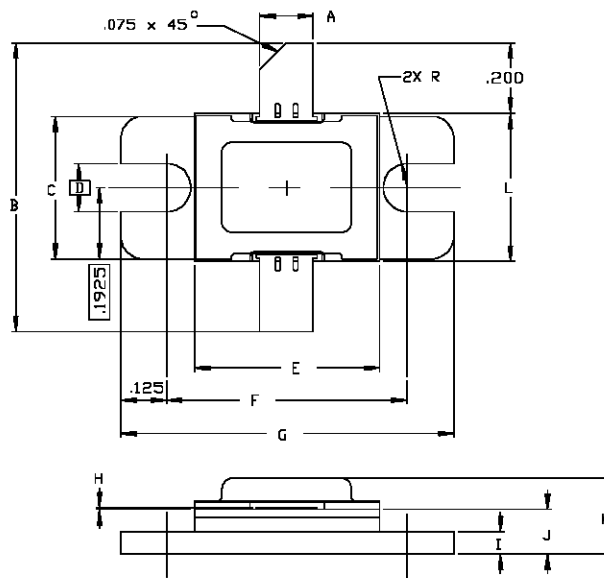
C1, C4 : Cold End Terminated Through Eyelet.

PC BOARD LAYOUT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0112



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.145/3,68	.155/3,93
B	.750/19,05	
C	.380/9,65	.390/9,91
D	.130/3,30	
E	.495/12,57	.507/12,88
F	.640/16,26	.655/16,64
G	.890/22,61	.910/23,11
H	.002/0,05	.006/0,15
I	.055/1,40	.065/1,65
J	.115/2,92	.135/3,43
K		.230/5,84
L	.395/10,03	.407/10,34

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